AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-18 (Canceled)

Claim 19 (Currently amended): An electromechanical filter, comprising:

a microvibrator that is adapted to resonate with an input signal, wherein a voltage is applied across the microvibrator to control a potential of the microvibrator;

a sensing electrode that is arranged at a predetermined interval to the microvibrator; and

a quantum device that senses a change in an electrostatic capacity between the microvibrator and the sensing electrode to output the change as an electric signal,

wherein the quantum device has a source and a drain; and

wherein the sensing electrode is an electrode provided between the source and the drain of the quantum device.

Claim 20 (Original): The electromechanical filter according to claim 19, wherein the quantum device is a MOSFET; and

wherein the sensing electrode functions as a gate electrode of the quantum device.

Claim 21 (Original): The electromechanical filter according to claim 19, wherein the quantum device is an SET; and

wherein the sensing electrode functions as a conductive island of the quantum device.

Claim 22 (Original): The electromechanical filter according to claim 19, wherein the sensing electrode includes a charge exciting electrode formed on an insulating layer on a substrate, a projection structure formed on a face opposing to the microvibrator of the charge

exciting electrode, and a potential sensing electrode formed on the charge exciting electrode via the insulating layer and connected to the projection structure.

Claim 23 (Original): The electromechanical filter according to claim 19, wherein the microvibrator is arranged in a magnetic field and is excited by a Lorentz force generated by the magnetic field; and

wherein an input signal is input into one end of the microvibrator.

Claim 24 (Original): The electromechanical filter according to claim 19, wherein the microvibrator has a driving electrode arranged at a predetermined interval to the microvibrator; and

wherein the microvibrator is excited by an electrostatic force generated between the microvibrator and the driving electrode.

Claim 25 (Original): The electromechanical filter according to claim 24, wherein an input signal is input into the driving electrode.

Claim 26 (Original): The electromechanical filter according to claim 19, wherein the microvibrator and the quantum device are formed on a same substrate.

Claim 27 (Original): The electromechanical filter according to claim 19, wherein the microvibrator and the sensing electrode of the quantum device are formed of a same material.

Claim 28 (Original): The electromechanical filter according to claim 19, wherein the sensing electrode of the quantum device is formed of a semiconductor material.

Claim 29 (Original): The electromechanical filter according to claim 19, further comprising a signal amplifying unit that is provided on a signal output port side.

Please add the following new claims to the present application:

Claim 30 (New): An electromechanical filter, comprising:

a microvibrator that is adapted to resonate with an input signal;

a sensing electrode that is arranged at a predetermined interval to the microvibrator; and

a quantum device that senses a change in an electrostatic capacity between the microvibrator and the sensing electrode to output the change as an electric signal, wherein the quantum device is a SET;

wherein the quantum device has a source and a drain;

wherein the sensing electrode is an electrode provided between the source and the drain of the quantum device and functions as a conductive island of the quantum device.

Claim 31 (New): An electromechanical filter, comprising:

a microvibrator that is adapted to resonate with an input signal;

a sensing electrode that is arranged at a predetermined interval to the microvibrator; and

a quantum device that senses a change in an electrostatic capacity between the microvibrator and the sensing electrode to output the change as an electric signal,

wherein the quantum device has a source and a drain; and

wherein the sensing electrode is an electrode provided between the source and the drain of the quantum device and includes:

a charge exciting electrode formed on an insulating layer on a substrate,

a projection structure formed on a face opposing to the microvibrator of the charge exciting electrode, and

a potential sensing electrode formed on the charge exciting electrode via the insulating layer and connected to the projection structure.

Claim 32 (New): An electromechanical filter, comprising:

a microvibrator that is adapted to resonate with an input signal that is input into one end of the microvibrator, wherein the microvibrator is arranged in a magnetic field and is excited by a Lorentz force generated by the magnetic field;

a sensing electrode that is arranged at a predetermined interval to the microvibrator; and

a quantum device that senses a change in an electrostatic capacity between the microvibrator and the sensing electrode to output the change as an electric signal,

wherein the quantum device has a source and a drain; and

wherein the sensing electrode is an electrode provided between the source and the drain of the quantum device.